Citizens of Ebey's Reserve (COER) Comments:

Draft Environmental Impact Statement

for Naval Air Station Whidbey Island

Addendum 4:

Failure to Address Electromagnetic Warfare Training of Growler

Prepared for COER by Maryon Atwood

The Navy has never been transparent about the use of OLFC for electromagnetic warfare training and little mention has ever been made of the fixed emitter at OLF. COER had to FOIA documents from the Navy to find out about its usage but the Navy still provided little more than charts.

The placement, proposed placement, and usage of fixed and mobile emitters at various locations in Washington State (and elsewhere) has been treated like at least 3 different projects and kept primarily as EA's whenever possible. Yet it is clear that the use of this warfare training equipment by Growler pilots is all connected and has impacts on the civilian communities that they take place in and over. It is all Growler training and part of the Navy's efforts to consolidate and expand Growler training at NASWI. The new fixed tower emitter in Everett is triangulating electromagnetic emission toward the Olympic Peninsula, where they are proposing the new use of permitted mobile emitters on state and national forest roads. Electromagnetic emitters (mobile or fixed) are part of scheduled training hours for Growler pilots and do have singular and cumulative impacts on the region and Whidbey Island.

These impacts should be discussed in this DEIS and especially the fixed emitter at OLF should be discussed. The full impacts of the OLF emitter's usage and it's impacts on the environment, wildlife, people and the pilots have not been analyzed nor revealed to the public since its placement in the late 1990's. Science, safety and regulations for electromagnetic emissions have improved and progressed since the 1990's.

Further, the Navy never adequately substantiated its need for non Defense Department lands, as was required by the 1988 Master Agreement; instead of proving that no DoD lands were available or suitable, it said using the Olympic Peninsula's public lands was for the purpose of saving $4 to $5 million dollars of jet fuel per year. Saving fuel is a good goal, but this reason does not prove that DoD lands were either unavailable or unsuitable, which was the primary requirement of the Master Agreement.

How does the Navy justify training flights doing electronic warfare on non-DoD public lands for which it never properly justified to the public its reasons for using?

On page 5-19 of the DEIS, electronic warfare is listed as a "relevant activity," and in the Abstract it states the proposed action would:

> "…Increase electronic attack capabilities by adding 35 or 36 aircraft to support an expanded U.S. Department of Defense mission for identifying, tracking, and targeting in a complex electronic warfare environment."

So, with electronic attack being relevant to the DEIS, it can be assumed that a discussion on impacts from training with this suite of electronic attack weapons should be included.

The 200-page EA Warfare Training Range document covers a huge area of airspace, but only 875 acres of land were specifically named, between Everett and Mt. Baker. The lone ground-based emitter mentioned was located in Coupeville, and the number of annual training events for Growler jets proposed back in 2009 was 275. That's what the biological opinion evaluated. Not three mobile emitters and one fixed tower in 14 brand-new places, not 36 low-altitude Growler jets in areas previously not evaluated, not 2,900 Growler training events in the Olympic National Forest and another 2,100 elsewhere, for eight to 16 hours per day, 260 days per year.

The stated intent of the 2014 Electronic Warfare EA was to "turn out fully trained, combat-ready electronic attack crews." However, it also focused on the ground-based emitters and glossed over the airborne components of the training.

Nowhere do any Navy NEPA documents from the last 7 years discuss the risk of exposure to chronic downward-directed radiation from weaponized forms of directed energy aboard these jets, to civilians, wildlife and habitat.

The only discussion was a brief mention in the 2014 EA, in reference to radio transmitters on the mobile emitter trucks and the stationary transmitter at Pacific Beach in Everett. The Navy referenced a paper by Focke et al, and concluded that links from radiation exposure to leukemia were speculative, when in fact, that same paper stated unequivocally that there are direct links between radiation exposure and childhood leukemia. **Why is any mention or discussion of risks from exposure to electromagnetic radiation from Navy jets completely missing from all discussions of potential impacts?**

The fixed emitter at OLFC, the fixed emitter tower being built in Everett (Pacific Beach) on Navy property, the mobile emitter trucks on the Olympic Peninsula are all part of the same proposed expansion of the EA-18G Growler trainings at NASWI and at OLF with the addition of 35/36 new Growlers. All of these electromagnetic emitters are here ONLY because of the Growlers sited at NASWI. These trainings are connected and must be assessed as a cumulative impact of electromagnetic impacts on not only Central Whidbey but also the lands and sea BETWEEN the emitters from Everett to the Olympic Peninsula.

An editorial published by the Everett Herald, March 19, 2015, challenged the Navy's attempts to allay civilian concerns about the impacts of elecromagnetic emitters and Growler trainings with this equipment:

> In addition to the annoyance and noise from increased jet flights over OLF and Ebey's Landing National Historical Reserve, the Olympic National Park and Olympic National Forest and the Colville and Okanogan–Wenatchee National Forests, there is also a lack of clarity from the Navy about the potential for harm from the electromagnetic signals used in the training. "In its own information about the proposal (for moving the Growler training from Idaho to Washington), the Navy attempts to minimize the risk from the signals, comparing them to the type of emissions from cellphones and Bluetooth devices. The emitters, when in use, would be 14 feet off the ground, directing the signals into the sky. The trucks themselves would be cordoned off in a 100-foot radius with signs reading, "Warning/Radio Frequency Hazard; Personnel Hazard Exists In This Area; Keep Moving." But accidental direction of the electronic signals could be a problem for any person, animal or bird in their path. A Navy spokesman told the Peninsula Daily News in October that 'if someone is in the exclusion area for more than 15 minutes, that's a ballpark estimate for when there would be some concern for potential to injure, to receive burns.'Clearly, this involves signals much stronger than your cellphone or Bluetooth device. Each truck's two-person crew would be on hand to tell people not to loiter, but that puts a lot of expectation on how attentive the crews would be."….. "The need for the Navy to train its fliers for their missions isn't being challenged, but the potential for harm to people and wildlife calls for conditions and an environment that offer better control and safety than are available in forest lands open to the public. One suggestion for a more suitable site: How about the 327,000 secured acres of Joint Base Lewis McChord's Yakima Training Center

OLF Stationary Electromagnetic Emitter

A fixed electromagnetic emitter is currently operational and located at OLFC for EA18-G Growlers practice training. The emitter at OLFC was installed in 1998 and is used on average 600 hours per year. The DEIS is silent on it's environmental impacts.

Yearly record of Fixed Emitter use at OLFC

OPERATIONS OF AN ELECTRONIC COMBAT TRAINING FACILITY AT OUTLYING FIELD COUPEVILLE, NAVAL AIR STATION WHIDBEY ISLAND, ISLAND COUNTY, WASHINGTON

Pursuant to Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) implementing procedural provisions of the National Environmental Policy Act, the Department of the Navy gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement is not required for the construction and operation of an electronic combat training (ECT) facility at Outlying Field (OLF) Coupeville, Naval Air Station, Whidbey Island (NASWI), Island County, Washington.

The proposed action is to construct and operate an ECT facility capable of providing needed electronic combat training in established Military Operation Areas for aircrews stationed at NASWI. The proposed ECT facility would be located in the southwestern portion of OLF Coupeville and would consist of a radome resting on top of a single-story, 50-foot square building. The radome would house an electronic device called "ground threat signal generator" or Device AN/FSQ-T22. The total height of the structure would be about 45 feet above ground level. The proposed facility would also have an aircraft beacon, a parking area, and a security zone within a chain link fence. The proposed action is needed to complement the existing ECT facility at Seaplane Base, NASWI in supporting current and follow-on EA-6B hardware/software improvements and maximizing in-flight aircrew training in the Pacific Northwest.

Document photos from a FOIA from NASWI on Electromagnetic Emitter at OLF –

The Navy did not perform any studies to prove that there was no significant impact.

The Na

OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO

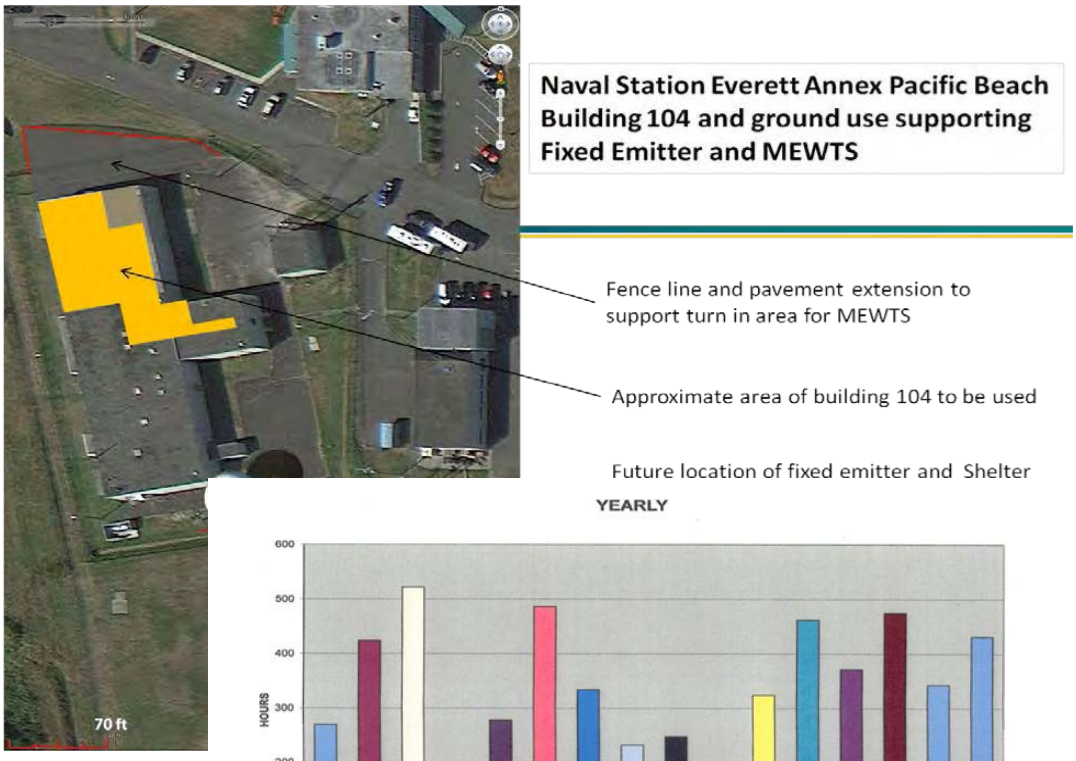
From: Chief of Naval Operations
To: Commanding Officer, Naval Air Station Whidbey Island

Subj: FINDING OF NO SIGNIFICANT IMPACT FOR THE CONSTRUCTION AND OPERATIONS OF AN ELECTRONIC COMBAT TRAINING FACILITY AT OUTLYING FIELD COUPEVILLE, NAVAL AIR STATION WHIDBEY ISLAND, ISLAND COUNTY, WASHINGTON

Ref: (a) CINCPACFLT ltr 5090 Ser N46541/2433 of 23 APRIL 1997
(b) OPNAVINST 5090.1B
(c) Advisory Council on Historic Preservation ltr of 13 June 1997

Encl: (1) Notice of Availability of Environmental Assessment and Finding of No Significant Impact
(2) Finding of No Significant Impact

Installation & Operation of Fixed Emitter at Naval Station Everett, Pacific Beach, WA



To facilitate training of Growlers at NASWI,

the Navy has proposed construction of a new permanent tower south of Building 104 (Figure above) in Everett, which is required to support a fixed emitter (MRES) at NS Everett Annex Pacific Beach. The 40-foot tower and fixed emitter would have a total height of about 66 ft. above ground level on a Navy-operated, controlled, and owned site, to which the public does not have access. The MRES is capable of generating an electromagnetic wave at frequencies ranging from 2 to 18 gigahertz (GHz). It can emit up to 64 simultaneous signals and can transmit in pulses or a continuous wave. The tower is being built tall enough so it can be pointed toward the Olympic Peninsula with little obstruction.

This new tower and fixed emitter are a result of the Navy's one-site Growler stationing and training at NASWI. This new stationary emitter along with the mobile emitters will impact civilians in the greater Everett region, including the southern part of Whidbey Island.

We really don't know how many people will be impacted because of lack of information from the Navy, research or any scientific studies of how often and when these devises will be used., or what their range is.

Additionally, counties of Washington State to be directly impacted by expanded Growler electromagnetic warfare training, including the proposed addition of 35/36 Growlers discussed in the DEIS (and additional Growlers not included in the DEIS but ordered by the DOD): in the Okanogan and Colville National Forests beneath the assigned airspace of the Olympic Peninsula and National forest, Okanogan and Roosevelt MOAs. These areas include the following 9 Counties: Island, Clallam, Ferry, Grays Harbor, Jefferson, Okanogan, San Juan, Skagit, and Stevens. The Navy does not include these in the overall/cumulative impacts in its DEIS.

Health Impacts are a Public Concern:

Dr. Martin Pall, a professor emeritus of biochemistry and medical sciences with Washington State University, has written several peer-reviewed papers on the subject of how electromagnetic radiation of various levels impacts human beings, as well as international lectures on the subject.

Pall refutes the claims by the Navy that "no significant impacts" will occur to wildlife or humans from their electromagnetic war games. He has provided reams of evidence, including his own scientific reports that document, in detail, the extremely dangerous impacts of even very low levels of the microwave and electromagnetic radiation that the Navy would be emitting during their war games.

Pall's paper, titled "Electromagnetic fields act *via* activation of voltage-gated calcium channels to produce beneficial or adverse effects," outlines the impact of electromagnetic radiation on biological organisms, and was given the honor of being posted on the "Global Medical Discovery" site as one of the top medical papers of 2013 <http://onlinelibrary.wiley.com/doi/10.1111/jcmm.12088/full >.

According to Pall, a NASA study, and more then 1,000 other scientific reports and studies, the health impacts of even the Navy's lowest levels of electromagnetic radiation emissions are shocking. The NASA study lists dozens of human health impacts, and one of the tables in the report, titled, "Subjective effects on persons working in radio frequency electromagnetic fields," lists symptoms that include hypotension, exhausting influence on the central nervous system, decrease in sensitivity to smell, periodic or extreme headaches, extreme irritability, increased fatigability, and intensification of the activity of the thyroid gland.

A 2013 paper published in the journal Reviews on Environmental Health, titled "Radiation from wireless technology impacts the blood, the heart and the autonomic nervous system," lists a series of 14 different pleas from multiple scientists who state the need for much more vigorous action on the health effects from microwave EMFs < http://www.bioportfolio.com/resources/pmarticle/746019/Radiation-from-wireless-technology-affects-the-blood-the-heart-and-the-autonomic.html >.

> "Carcinogenicity of radiofrequency," "The sensitivity of children to electromagnetic fields," "Exposure to extremely low frequency electromagnetic fields and the risk of malignant diseases - an evaluation of epidemiological and experimental findings," "Extremely low frequency electromagnetic fields as effectors of cellular responses in vitro: possible immune cell activation," and "Exposure to electromagnetic fields and the risk of childhood leukemia," to name just a few.
>
> One report titled "Biological effects from electromagnetic field exposure and public exposure standards," published in the journal Biomedicine and Pharmacotherapy in 2008, concluded: “Health endpoints reported to be associated with ELF and/or RF include childhood leukemia, brain tumors, genotoxic effects, neurological effects and neurodegenerative diseases, immune system deregulation, allergic and inflammatory responses, breast cancer, miscarriage and some cardiovascular effects.” The BioInitiative Report concluded that a reasonable suspicion of risk exists based on clear evidence of bioeffects at environmentally relevant levels, which, with prolonged exposures may reasonably be presumed to result in health impacts.

Mike Welding, the Naval Air Station at Whidbey Island spokesman, recently admitted to Peninsula Daily news reporters that any antennas emitting electromagnetic energy produce radiation. "As a general answer, if someone is in the exclusion area for more than 15 minutes, that's a ballpark estimate for when there would be some concern for potential to injure, to receive burns," he said. He has made no comment about the electromagnetic emitter located at OLFC.

The US Air Force published the report, "Radiofrequency/Microwave Radiation Biological Effects and Safety Standards: A Review" <http://emfrefugee.blogspot.com/2014/09/radiofrequencymicrowave-radiation.html >. Page 18 of the report states: "Nonthermal disruptions have been observed to occur at power densities that are much lower than are necessary to induce thermal effects. Soviet researchers have attributed alterations in the central nervous system and the cardiovascular system to the non-thermal effect of low level RF/MW radiation exposure." The report concludes, "Experimental evidence has shown that exposure to low intensity radiation can have a profound effect on biological processes." At the time that report was written, the standard for exposure was 50,000 mW/m^2. Today, the maximum exposure limit is 10,000 mW/m^2, yet even that level is more than 1 million times the allowable exposure limits published in the 2012 BioInitiative Report.

Navy Admits Harmful Biological Effects:

On October 4, 1971, the Naval Medical Research Institute published a research report written by Dr. Zorach Glaser. The title of the report is "Bibliography of Reported Biological Phenomena ('Effects') and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation" < http://www.stetzerizer-us.com/research-Naval-Medical-Research-Institute-Outline.html>.

Given that the Navy continues to claim that their EMR warfare training exercises will have "no significant impact" on humans, it is interesting to note that their own research paper's abstract states:

> More than 2,000 references on the biological responses to [microwave and] radio frequency and microwave radiation, published up to June 1971, are included in the bibliography. (Three supplementary listings bring the number of citation to more than 2,300.) Particular attention has been paid to the effects on man of non-ionizing radiation at these frequencies.

The Navy's paper lists well over 100 negative biological effects caused by microwave and radio frequency radiations, of which here is a partial list from their report:

> corneal damage, tubular degeneration of testicles, brain heating, alteration of the diameter of blood vessels, liver enlargement, altered sex ratio of births, decreased fertility, sterility, altered fetal development, decreased lactation in nursing mothers, altered penal function, death, cranial nerve disorders, seizures, convulsions, depression, insomnia, hand tremors, chest pain, thrombosis, alteration in the rate of cellular division, anorexia, constipation, altered adrenal cortex activity, chromosome aberrations, tumors, altered orientation of animals, birds and fish, loss of hair, and sparking between dental fillings.

Dr. Martin Pall, WSU emeritus faculty, concludes,

> "What the Navy is doing we have no idea because they don't tell us . . . but from what little they have told us, they are using a lot of pulse fields in wavelengths that are damaging to us, to biological organisms. They give us not one iota of evidence of what biological effects are produced by those fields, and don't even tell us what fields they are using. You only find empty statements of 'don't worry about these things.'"

COER notes the abundance of peer-reviewed, published scientific studies about the harmful effects to humans of electromagnetic radiation. Dahr Jamail reports that a quick search on Google Scholar for "Electromagnetic fields risk to humans" produces over 63,000 results, most of which are published scientific studies that chronicle the deleterious impact of electromagnetic fields to the human organism. Some of Jamail's selected sites are (hit control click to go to the link):

- "Carcinogenicity of radiofrequency,"
- "The sensitivity of children to electromagnetic fields," which states, "Consistent epidemiologic evidence of an association between childhood leukemia and exposure to extremely low frequency (ELF) magnetic fields has led to their classification by the International Agency for Research on Cancer as a "possible human carcinogen."
- "Exposure to extremely low frequency electromagnetic fields and the risk of malignant diseases - an evaluation of epidemiological and experimental findings,"
- "Extremely low frequency electromagnetic fields as effectors of cellular responses in vitro: possible immune cell activation," and
- "Exposure to electromagnetic fields and the risk of childhood leukemia," to name just a few.

One study selected, titled "Leukemia and Occupational Exposure to Electromagnetic Fields:

Review of Epidemiologic Surveys," states in its abstract: "Results for total leukemia show a modest excess risk for men in exposed occupations, with an enhanced risk elevation for acute leukemia and especially acute myelogenous leukemia."

Another report titled "Biological effects from electromagnetic field exposure and public exposure standards," <http://www.sciencedirect.com/science/article/pii/S0753332207002909> published in the journal Biomedicine and Pharmacotherapy in 2008, concluded: Health endpoints reported to be associated with ELF and/or RF include childhood leukemia, brain tumors, genotoxic effects, neurological effects and neurodegenerative diseases, immune system deregulation, allergic and inflammatory responses, breast cancer, miscarriage and some cardiovascular effects. The BioInitiative Report concluded that a reasonable suspicion of risk exists based on clear evidence of bioeffects at environmentally relevant levels, which, with prolonged exposures may reasonably be presumed to result in health impacts.

Mike Welding, the Naval Air Station at Whidbey Island spokesman, recently admitted to Peninsula Daily news reporters that any antennas emitting electromagnetic energy produce radiation. "As a general answer, if someone is in the exclusion area for more than 15 minutes, that's a ballpark estimate for when there would be some concern for potential to injure, to receive burns," he said.

In 1994, the US Air Force published the report, "Radiofrequency/Microwave Radiation Biological Effects and Safety Standards: A Review." Page 18 of the report states: "Nonthermal disruptions have been observed to occur at power densities that are much lower than are necessary to induce thermal effects. Soviet researchers have attributed alterations in the central nervous system and the cardiovascular system to the nonthermal effect of low level RF/MW radiation exposure."

The report concludes, "Experimental evidence has shown that *exposure to low intensity radiation can have a profound effect on biological processes*." At the time that report was written, the standard for exposure was 50,000 milliwatts per square meter. Today, the maximum exposure limit is 10,000 milliwatts per square meter, yet even that level is more than 1 million times higher than the allowable exposure limits published in the 2012 BioInitiative Report.

Electromagnetic Radiation Impacts Mammals:

This de-classified Army report on RF weapons outlines several ways that RF radiation can harm

mammals. One is thermal: burning and hyperthermia (heat stroke) inducing disorientation. “In prolonged hyperthermia, with temperatures over 40º C to 41º C, the brain suffers severe damage that usually leads to death.” The size of the animal and the wavelength of the radiofrequency are most important. In the Rhesus monkey a frequency of 0.225 GHz at 10 W/kg of body weight caused the body temperature to increase to 42º C within 10-15 minutes. A lower dose of 5 W/kg caused the temperature to increase to 41.5º C in less than two hours. The convulsive threshold for rats is estimated to lie between 22-35 W/gm for one second.

A second method of incapacitating mammals with RF radiation is called “microwave hearing.” Microwave hearing is the sensation of buzzing, ticking, hissing or knocking sounds that originate within the head from pulsed microwaves. There is no sound present. The threshold energy of themicrowave auditory response in humans is a function of pulse width and frequency but also varies from individual to individual. For a frequency of 2.45 GHz. the incident energy density per pulse must equal or exceed 20 mJ/kg body weight with pulse widths between 0.5-32 microseconds. Not enough information is given about the mobile emitters to make a determination of this effect. The threshold for animals and birds is not known. The onset is immediate but only lasts as long as the exposure. In addition to disrupting hearing, there might also be an adverse psychological effect.

A third method for incapacitating mammals with RF radiation is disruption of neural control. The neurons are electrically stimulated in a synchronous manner. Electronic stimulation of neural synchrony can be achieved. At just the right frequency, pulse repetition rate and energy, seizure can result. “The condition thought to be necessary to produce [this effect is] an overall [pulse] repetition rate of 15 Hz. Such a field may be developed using a radar-like, high-peak power, pulsed source...The effective range could be hundreds of meters.” This would vary from individual to individual.

Conclusions:

This DEIS insufficiently examines the environmental impacts of electromagnetic warfare training by EA18G Growlers that have changed and increased from the Prowler aircraft, As the Navy increases the number of Growlers at NASWI, it is logical to conclude that electromagnetic radiation impacts will also increase. The public has seen no information from the Navy on the health and safety consequences of these expansions. The public has a right to know.

To determine whether a single project is improperly segmented into multiple parts, courts have applied a four-part test that asks whether "the proposed segment (1) has logical termini; (2) has substantial independent utility; (3) does not foreclose the opportunity to consider alternatives;

and (4) does not irretrievably commit federal funds for closely related projects." Save Barton Creek, 950 F.2d at 1140 (citing Piedmont Heights, 637 F.2d at 439; applied in O'Reilly v. US Army Corp of Eng, 447 F3d 225(5th Cir. 2007)).

(1) This precedent should be applied to the individual and cumulative electromagnetic emitter(s) impacts associated with the EA18G Growler trainings from emitters and aircraft.
(2) The Navy has not provided "any evidence" to support their claims that electromagnetic frequencies (EMF) do not impact wildlife and humans deleteriously, and that shortfall must be addressed and the impacts delineated.
(2) Growler expansion brings increased exposure to electromagnetic radiation.
(3) Science shows cause for public concern regarding electromagnetic radiation. Emitters, whether stationary or mobile, should be challenged until proof of safety is provided through analysis.
(4) Continued use of the OLFC fixed emitter should be challenged on health and safety concerns since the Navy's only and last public environmental assessment was provided in 1998 with a Navy decision of 'no significant impact' – almost 20 years ago. Science shows cause for public concern regarding electromagnetic radiation use by the Growlers and the Growler trainings.